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EXAMINER
CHANG, LI WU

ART UNIT	PAPER NUMBER
2129	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/581,411	VITTOR ET AL.
Office Action Summary	Examiner	Art Unit	
	LIWU CHANG	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>27 February 2009</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-24, 26-32, 34 and 36-45</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-24, 26-32, 34, 36-45</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 08-06)   **Office Action Summary**   Part of Paper No./Mail Date 20090324

DETAILED ACTION

1.   This office action is responsive to amendment filed 02/27/2009 with the claim of

foreign priority date 12/01/2003. Claims 1-24, 26-32, 34, 36-44 are amended. Claims

25, 33 and 35 are cancelled. Claim 45 is new. Claims 1-24, 26-32, 34, 36-45 are

pending.

Response to Arguments

Applicant's arguments filed 02/27/2009 have been fully considered but they are

not persuasive.

In re pgs 13-14, the argument is that references Ozawa and Seraji do not teach

or suggest that "units act independently of and without reference to the target action of

other units".

In response, the meaning of the phrase "units act independently of and without

reference to the target action of other units" is ambiguous. The specification does not

provide the term "independently of" or "without reference to" a definition, but describes it

in two embodiments. In Pg 14, L 1-3, the specification describes the desired and actual

positions of link (i+1) as the input parameters to link i. Obviously, the decision of actions

made at link i is based at least in part on information transmitted from other links. Each

link is dependent upon and with reference to other links and thus, independence among

links does not hold. This embodiment is central to the instant application, and "the

embodiment described herein relies on information being relayed from one link to the

next" (Pg 12, L 18-20). Not that the claim does not specify what exactly the inputs to

each link are. Terms "the target outcome" and "the target action" are not further defined

in the claim.

In Pg 12, L 15-18, the specification recites "each link may have a sensor which

provides it with information regarding a reference position. In this way, each link may

operate independently". However, this embodiment (referred to as the 2nd embodiment)

is not further discussed in the specification and can only be regarded as a non-

functional descriptive statement. In fact, such an embodiment is impractical and

inoperable in real world applications. There is no discussion how critical factors, such

as, extensive feedback control, adjustment, synchronization and collaboration, are

implemented in the 2nd embodiment. The completion time of a task cannot be decided

and completion cannot be assured. Additional materials are needed to ensure its

validity. In the absence of supporting materials, the 2nd embodiment is considered to be

not useful and lack of utility.

Ozawa discloses each link operate independently performs driving of the

servomotor based on received information (C 7, L 60-67 and C 8, 1-20, L 8, L 20-25, or

C 8, L 60-65).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
conditions and requirements of this title.

Claims 1-24, 26-32, 34, 36-45 are rejected under 35 USC 101the claimed

invention is directed to non-statutory subject matter. Regarding claims 1, it is directed

to method. The court has said that there's a two-pronged test to determine whether a

software of business method process patent is valid: (1) it is tied to a particular machine

or apparatus, or (2) it transforms a particular article into a different state or thing. In

other words, pure software or business method patents that are neither tied to a specific

machine nor change something into a different state are not patentable. Ex parte Bilski,

Appeal No. 2007-1130 (Fed. Cir. October 30, 2008). Claim 1 does not specify the input

to each link. In the claim, "the target outcome" is for the system. It is not clear whether

the same or different target outcome is for each link. In the lack of clearly defined input,

it fails the tie and transformation tests. Accordingly, claim 1 is not statutory. Claims 3

and 24 are directed to a method. Again, they fail the tests. Accordingly, they are not

statutory. As to any claim not specifically discussed it is a dependent claim that is

rejected for the reasons given above with respect to the claim(s) on which it depends.

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Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly
claiming the subject matter which the applicant regards as his invention.

Claims 1-24, 26-32, 34, 36-45 are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention. The specification fails to

particularly point out the meaning of the features "independently of and without

reference to".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1, 18-23, 26, 32-33, 36-43 and 45 are rejected under 35 U.S.C. 102(e) as

being anticipated by Ozawa et al. (US Patent No. 5,055,755), hereinafter **Ozawa**.

3.   With respect to claim 1, Ozawa discloses a method for controlling a system

comprising a plurality of interdependent units to achieve a target outcome, the method

comprising the steps of:

automatically establishing the target outcome for the system (**Ozawa**: in Fig 1, the

manipulator is an example of a system of interdependent units, in Fig 17, the locus of

motion, as of steps P1, … P21, is an example of the target action);

automatically establishing a target action for each interdependent unit of the plurality of

interdependent units responsive to the target outcome (**Ozawa**: Fig 9, functions in the

modules, such as "motor control program", "motor fault countermeasure program" and

"drive degree change program" describe each unit responsive to the outcome and

independent action, or C 7, L 55-67 and C 8, L 1-5, L 20-25, "The CPU 54 sends the

data", "the CPU 46 produces drive control signal representative of the drive degree,

drive speed and rive direction for the servomotor" or "In like manner, the second to the

fourth motor controllers 27 to 29 control the driving of the servomotor" implies

automatically establishing a target action responsive to the target outcome).; and

automatically actuating each interdependent unit of the plurality of interdependent units

to perform the target action for the respective interdependent unit of the plurality of

interdependent units (**Ozawa**: C 7, L 60-67 and C 8, L 1-25, "The drive control signals

are fed to the motor drive circuit 51. Thus, the servomotor 12 is driven on the basis of

the drive degree, drive speed and drive direction represented by the drive control

signals. As has been described above, the encoder 17 detects the rotational degree

and rotational direction of the servomotor 12 and feeds the data representative of the

rotational degree and rotational direction back to the first motor controller 26. The

output from the encoder 17 is converted by the potentiometer 17a to a signal which is

easily processed by the CPU. Once again, the CPU 46 produces drive control signals

so that the deviation between the fed-back data of the rotational degree an rotational

direction, on the one hand, and the set data of the rotational degree and rotational

direction, on the other, can be reduced to zero" implies automatically actuating units to

perform the target action),

wherein in the automatic establishing of the target action for each interdependent unit,

the target action is established independently of, and without reference to, the target

action for any other interdependent unit of the plurality of interdependent units (**Ozawa**:

C 8, L 20-25, "In like manner, the second to fourth motor controllers 27 to 29 control the

driving of the servomotors in the joints9 and 10" implies the target action is established

independently of, and without reference to, the target action for any other

interdependent units).

4.   With respect to claim 18, Ozawa discloses wherein the target outcome is

automatically established in accordance with a spatial relationship of the system

(**Ozawa**: Figs 18-21, "data of points", 'locus of motion" imply spatial relationship).

5.   With respect to claim 19, Ozawa discloses wherein the target outcome is

automatically established in accordance with a predetermined spatial relationship of the

system relative to a target location (**Ozawa**: C 8, L 55-60, "locus of motion" imply an

action of following the path which can be predetermined).

6.   With respect to claim 20, Ozawa discloses wherein the target outcome is

automatically established in accordance with a time consideration (**Ozawa**: Fig 14

shows the computation that is time dependent).

7.   With respect to claim 21, Ozawa discloses wherein the target action

automatically established in accordance with an adjusting the spatial position of that

interdependent unit (**Ozawa**: C 2, L 49-51, "changing the control drive degree ..." imply

adjusting the spatial position).

8.   With respect to claim 22, Ozawa discloses wherein the adjustment is by way of

movement of the interdependent unit and/or expansion or contraction of that

interdependent unit (**Ozawa**: C 8, L 1-5, drive speed and direction imply the movement).

9.   With respect to claim 23, Ozawa discloses wherein the target outcome

determines the target position (**Ozawa**: Fig 16, "current position" implies outcome

determining positions).

10.   With respect to claim 26, Ozawa discloses a system comprising a controller

operable to implement the method in accordance with Claim I (**Ozawa**: Figs 9-23 imply

control methodologies).

11.   With respect to claim 32, Ozawa discloses a processor-readable medium

comprising a program of instructions executable on a computer, the instructions

operable to perform the method of Claim 1 (**Ozawa**: C 1, L 25-30, describe such a

program).

12.   With respect to claim 36, Ozawa discloses a system comprising the plurality of

interdependent units, the units being interdependent and operable to move relative to

one another (**Ozawa**: Fig 1, a robot system implies being operable to move); at least

one actuator operable to move the interdependent units (**Ozawa**: Fig 1, a robot system);

and the control system being operable to impart instructions to the at least one actuator

for the automatic actuating of the interdependent units (**Ozawa**: Fig 1, a robot system implies the controller and CPU impart instructions to each actuator, as shown in Fig 2, according to control methodology as described in Figs 9-23).

13.   With respect to claim 37, Ozawa discloses wherein the units of the plurality of interdependent units are interdependent by being in a predetermined spatial relationship (**Ozawa**: C 8, L 54-60, describe locus which can be predetermined).

14.   With respect to claim 38, Ozawa discloses wherein each unit of the plurality of interdependent units are is physically interconnected to at least one other unit of the plurality of interdependent units (**Ozawa**: Fig 1)

15.   With respect to claim 39, Ozawa discloses wherein the control system comprises a plurality of controllers each controller of the plurality of controllers positioned in a respective ones unit of the plurality of interdependent units, each controller ~ operable to impart instructions to the at least one actuator for the automatic actuating of the interdependent unit (**Ozawa**: Fig 1 shows different types of controllers operative to instructions).

16.   With respect to claim 40, Ozawa discloses wherein each interdependent unit of the plurality of interdependent units is a constituent part of a robot (**Ozawa**: Fig 1 shows a robot system).

17.   With respect to claim 41, Ozawa discloses wherein each constituent part is a

module in the robot implemented as a robotic manipulator (**Ozawa**: Fig 1, wherein at

least a segment with motor controller can be an example of a module).

18.   With respect to claim 42, Ozawa discloses a system comprising a plurality of

subsystems, each subsystem of the plurality of subsystems comprising the system

according to Claim 36 (**Ozawa**: Fig 9 the execution of a program implies the control t

impart instructions to some actuators).

19.   With respect to claim 43, Ozawa wherein to achieve a target outcome,

intermediate outcomes are automatically established for each subsystem of the plurality

of subsystems, and wherein the control system coordinates movement of the plurality of

subsystems by coordinating the intermediate outcomes for each subsystem (**Ozawa**:

Fig 18, "receive data", "find out joint angles between respective points", Fig 20, "receive

feedback data", Fig 21, "fault" and "locus", Fig 22, "locus calculation" and "lock angle",

and Fig 23, "transmit data through another controller" imply coordinating the

intermediate outcomes for each subsystem).

20.   With respect to claim 45, Ozawa discloses wherein each unit of the plurality of

independent units is physically joined together directly or indirectly with at least one

other unit of the plurality of interdependent units (**Ozawa**: Fig 1).

Claim Rejections - 35 USC § 103

21.   Claims 2-13, 24-25, 27-31, 34-35 and 44 are rejected under 35 U.S.C. 103(a) as

being unpatentable over **Ozawa**, in view of Seraji (US Patent No. 5414799), and

hereinafter **Seraji**.

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22.   With respect to claim 2, Ozawa discloses wherein the target action for each

interdependent unit is automatically established in response to a current position of at

least one reference portion of the system relative to a target position (**Ozawa**: C 7, L 60-

67 and C 8, L 1-5, "drive degree, drive speed and rive direction" imply the target action,

and "the CPU 46 finds a deviation between the target position data and the angular a

position data of the servomotor" imply the current position and the target position).

        Ozawa fails to particularly call for the term "reference portion" in the limitation.

Seraji discloses "the at least one reference portion" (**Seraji**: Abstract, L 18-22, the

"frame of reference" and Figs 6-7, the reference coordinates are examples of reference

portion). It would have been obvious for one of ordinary skill in the art at the time of

invention to incorporate the reference frames, as disclosed by Seraji, into the parametric

representation of Ozawa, because the reference frame is necessary to the control

computation of a robotic system.

23.   With respect to claim 3, Ozawa discloses a method for controlling a system

comprising a plurality of interdependent units to achieve a target outcome, the method

comprising the steps of:

automatically establishing the target outcome for the system, automatically establishing

a target action for each interdependent unit of the plurality of interdependent units

responsive to the outcome, wherein the target action for an interdependent unit of the

plurality of interdependent units is automatically established in response to a current

position of at least one reference portion of the system relative to a target position of the

at least one reference portion (**Ozawa**: Fig 1, the manipulator is an example of a system

of interdependent units, Fig 17, the motion locus, P1, … P21 imply the target action,

and Fig 9, functions given in modules, such as "motor control program", "motor fault

countermeasure program" and "drive degree change program" describe each unit

responsive to the outcome and independent action, where C 7, L 60-67 and C 8, L 1-5,

"drive degree, drive speed and rive direction" imply the target action, and "a deviation

between the target position data and the angular a position data of the servomotor", or

C 7, L 55-67 and C 8, L 1-5, L 20-25, "The CPU 54 sends the data", "the CPU 46

produces drive control signal representative of the drive degree, drive speed and rive

direction for the servomotor" or "In like manner, the second to the fourth motor

controllers 27 to 29 control the driving of the servomotor" implies the current position

and the target position);

automatically actuating each interdependent unit of the plurality of interdependent units

to perform the target action for the respective interdependent unit of the plurality of

interdependent units (**Ozawa**: C 7, L 60-67 and C 8, L 1-25, "The drive control signals

are fed to the motor drive circuit 51. Thus, the servomotor 12 is driven on the basis of

the drive degree, drive speed and drive direction represented by the drive control

signals. As has been described above, the encoder 17 detects the rotational degree

and rotational direction of the servomotor 12 and feeds the data representative of the

rotational degree and rotational direction back to the first motor controller 26. The

output from the encoder 17 is converted by the potentiometer 17a to a signal which is

easily processed by the CPU. Once again, the CPU 46 produces drive control signals

so that the deviation between the fed-back data of the rotational degree an rotational

direction, on the one hand, and the set data of the rotational degree and rotational

direction, on the other, can be reduced to zero" implies automatically actuating units to

perform the target action),

wherein in the automatic establishing of the target action for each interdependent unit,

the target action is established independently of, and without reference to, the target

action for any other interdependent unit of the plurality of interdependent units (**Ozawa**:

C 8, L 20-25, "In like manner, the second to fourth motor controllers 27 to 29 control the

driving of the servomotors in the joints9 and 10" implies the target action is established

independently of, and without reference to, the target action for any other

interdependent units).

Ozawa fails to particularly call for the term "reference portion" in the limitation.

Seraji discloses "reference portion" (**Seraji**: Abstract, L 18-22, the "frame of reference"

and Figs 6-7, the reference coordinates are examples of reference portion). It would

have been obvious for one of ordinary skill in the art at the time of invention to

incorporate the reference frames, as disclosed by Seraji, into the parametric

representation of Ozawa, because the reference frame is necessary to the control

computation of a robotic system.

24.   With respect to claim 4, Ozawa discloses wherein the automatic establishing of

the target action for a-said each interdependent unit includes calculating a difference

value between the current position of [[a]] said at least one reference portion and the

target position of that the at least one reference portion, and using said difference value

to establish said target action (**Ozawa**: C 7, 60-67, "deviation" implies the difference,

and C 8, L 1-10, "the CPU 46 produces drive control signal representative of drive

degree, drive speed and drive direction" imply using said difference value to establish

said target action where C 8, L 10-25 describe the control). Seraji discloses the

reference portion (**Seraji**: Abstract, L 18-22).

25.   With respect to claim 5, Ozawa discloses automatically establishing an operation

action for each interdependent unit (**Ozawa**: C 7, 60-67 and C 8, L 1-10 describe the

steps of establishing operation actions), wherein the automatic actuating of each

interdependent unit includes instructing each interdependent unit to initiate its the

operation action. (**Seraji**: Figs 5-6 show the automatic actuating of each interdependent

unit includes, or C 11, EQ 114 – EQ 120 show the initiation values).

26.   With respect to claim 6, Ozawa discloses repeatedly iterating through the steps

of the method to so as to automatically establish an updated operation action (**Seraji**: C

11, EQ 114 – EQ 120).

27.   With respect to claim 7, Ozawa discloses wherein a rate of the iteration is
constant throughout the system (**Ozawa**: Fig 15 shows the rate control which includes a
constant rate).

28.   With respect to claim 8, Ozawa discloses wherein a rate of the iteration varies
among the interdependent units of the system (**Ozawa**: C 3, L 10-15, "… to detect the
controller having the lowest operation rate in the next operation cycle" imply the various
rate between units).

29.   With respect to claim 9, Ozawa discloses wherein the operation action for at least
some of the interdependent units of the plurality of interdependent units is the target
action (**Ozawa**: L 3, L 1-10, "controller" is one of the units).

30.   With respect to claim 10, Seraji discloses automatically establishing a constraint
factor for the system, and automatically establishing a constrained action for a
constrained interdependent unit of the plurality of interdependent units responsive to the
constraint factor, wherein the constraint factor limits a range of target actions available
to the constrained interdependent unit of the plurality of interdependent units. (**Seraji**:
Fig 7, shows the constraint and C 11, EQ 114-120 show the solution with respect to
constraints, the bounded inputs and outputs of EQ 114-120 implies limits of a range of
target actions).

31.   With respect to claim 11, Ozawa discloses wherein the operation action for the

constrained interdependent unit is the constrained action (**Ozawa**: Fig 17, following the

path trajectory is an example of constrained action).

32.   With respect to claim 12, Ozawa discloses wherein only the constraint factor for

the constrained interdependent unit are is utilised in the automatic establishing of the

constrained action for that the constrained interdependent unit (**Ozawa**: C 7, L 60-67

and C 8, L 1-20 describe the constrain factor for each unit, where an exemplary

constraint is the path planning, as in Fig 17).

33.   With respect to claim 13, Ozawa discloses wherein the constraint factor relating

to the constrained interdependent unit is utilised in establishing said constrained action

for another said interdependent unit of the plurality of interdependent units (**Ozawa**: the

unit 18 is an example of the unit and/or CPU 46).

34.   With respect to claim 24, Ozawa discloses A method for controlling a plurality of

interdependent units, the method comprising the steps of:

automatically deriving an operation action responsive to starting information for each

interdependent unit of the plurality of interdependent units (**Ozawa**: in Fig 1, the

manipulator is an example of a system of interdependent units, in Fig 17, the locus of

motion, as of steps P1, … P21, is an example of the target action, or Fig 9, functions in

the modules, such as "motor control program", "motor fault countermeasure program"

and "drive degree change program" describe each unit responsive to the outcome and

independent action, or C 7, L 55-67 and C 8, L 1-5, L 20-25, "The CPU 54 sends the

data", "the CPU 46 produces drive control signal representative of the drive degree,

drive speed and rive direction for the servomotor" or "In like manner, the second to the

fourth motor controllers 27 to 29 control the driving of the servomotor" implies

automatically establishing a target action responsive to the target outcome, or C7, L 60-

67 and C 8, L 1-10 describe steps of deriving actions);

automatically actuating each interdependent unit of the plurality of interdependent units

to perform the operation action for the respective interdependent unit of the plurality of

interdependent units (**Ozawa**: C 7, L 60-67 and C 8, L 1-25, "The drive control signals

are fed to the motor drive circuit 51. Thus, the servomotor 12 is driven on the basis of

the drive degree, drive speed and drive direction represented by the drive control

signals. As has been described above, the encoder 17 detects the rotational degree

and rotational direction of the servomotor 12 and feeds the data representative of the

rotational degree and rotational direction back to the first motor controller 26. The

output from the encoder 17 is converted by the potentiometer 17a to a signal which is

easily processed by the CPU. Once again, the CPU 46 produces drive control signals

so that the deviation between the fed-back data of the rotational degree an rotational

direction, on the one hand, and the set data of the rotational degree and rotational

direction, on the other, can be reduced to zero" implies automatically actuating units to

perform the target action),

wherein in the automatically deriving of the operation action for each interdependent

unit, the operation action is established independently of, and without reference to, the operation action for any other interdependent unit of the plurality of interdependent units (**Ozawa**: C 8, L 20-25, "In like manner, the second to fourth motor controllers 27 to 29 control the driving of the servomotors in the joints9 and 10" implies the target action is established independently of, and without reference to, the target action for any other interdependent units).

Ozawa fails to particularly call for the term "starting information" in the limitation, and "wherein the starting information is selected from a group comprising a target outcome, a target action, a constraint action and a reference position". Seraji discloses "starting information" (**Seraji**: C 11, EQ 114-120 show starting information), and "wherein the starting information is selected from a group comprising a target outcome, a target action, a constraint action and a reference position" position (**Seraji**: C 11, EQ 114-120 and Fig 6 shows target actions, constraints a reference position and coordinates). It would have been obvious for one of ordinary skill in the art at the time of invention to incorporate the starting information, as disclosed by Seraji, into the parametric representation of the control system Ozawa, because staring information is necessary in the control.

35.   With respect to claim 27, Ozawa discloses a sensor operable to collect information regarding a presence of a constraining factor for determining a constraint action for at least a constrained interdependent unit of the plurality of interdependent units (**Ozawa**: Figure 1, unit 19 is an example of a sensor).

36.   With respect to claim 28, Ozawa discloses an actuating system operable to
actuate the plurality of interdependent units (**Ozawa**: Fig 1, functions of "motor
controller" imply actuate the plurality of interdependent units).

37.   With respect to claim 29, Ozawa discloses wherein each interdependent unit of
the plurality of interdependent units is a constituent part of a robot (**Ozawa**: Fig 1 shows
constituent parts).

38.   With respect to claim 30, Ozawa discloses wherein each constituent part is a
module in the robot implemented as a robotic manipulator (**Ozawa**: Fig 9 shows control
modules for each constituent part).

39.   With respect to claim 31, Ozawa discloses control means operable to switch a
control methodology of the system to a centralised control methodology in which all
interdependent units of the plurality of interdependent units are centrally controlled
(**Ozawa**, C 7, L 7-13, "CPU 54 of the hand motor controller" carries out centralized
control methodology).

40.   With respect to claim 34, Ozawa discloses a processor-readable medium
comprising a program of instructions executable on a computer, the instructions

operable to perform the method of Claim 3 (**Ozawa**, Fig 1, or Fig 9 implies a processor perform the method).

41.   With respect to claim 35, Ozawa discloses a computer readable medium incorporating a computer program in accordance with Claim 34 (**Ozawa**: Fig 9 implies the execution according to stored program).

42.   With respect to claim 44, Ozawa discloses "wherein the automatic establishing of the target action for said the interdependent unit involves calculating a difference value between the current position of a reference portion of said at least one reference portion and the target position, and using said difference value for the automatic establishing of said target action" (**Ozawa**: C 7, L 60-67 and C 8, L 1-5, "drive degree, drive speed and rive direction" imply the target action, and "the CPU 46 finds a deviation between the target position data and the angular a position data of the servomotor" imply the current position and the target position). Seraji discloses reference portion (**Seraji**: Abstract, L 18-22, the "frame of reference" and Figs 6-7, the reference coordinates are examples of reference portion).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIWU CHANG whose telephone number is 571-270-3809. The examiner can normally be reached on 8:30AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on 571-272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LIWU CHANG

Examiner
Art Unit 2129

March 30, 2009

/David R Vincent/

Supervisory Patent Examiner, Art Unit 2129